

## Chagas Disease – American Trypanosomiasis

*Chagas disease (American Trypanosomiasis) is not reportable to the state of Louisiana as it is in the group of rare infectious diseases.*

Chagas disease or American Trypanosomiasis is an infectious disease caused by a protozoa, *Trypanosoma cruzi*, transmitted by reduviids or kissing bugs. Chagas disease is endemic in Latin America.

Most cases of Chagas disease in the United States are imported cases seen in Latin American immigrants. The protozoa is present in the blood, thus a potential risk exists in transmission through blood donations and organ transplantation.

*Triatomasanguisuga*, *T.gerstaeckeri* and *T.lecticularia* (Family Reduviidae, subfamily Triatominae) are present in the U.S. Southern Gulf States. Reduviid bugs in Louisiana can transmit several strains of animal *T.cruzi* among armadillos, opossums, rodents, squirrels, and raccoons. The *T.cruzi* infection rate for Triatominae in the Southern U.S. is 20%. In 1998, *T.cruzi* was isolated from the blood of 29% of armadillos captured near New Orleans (Yaeger RG 1998. Am J Trop Med 35:323-326). Surveys in other southern states showed seroprevalences in the range of 30% to 50% among this animal species. Domestic animals, particularly dogs, are at risk of acquiring the infection. In 2005, *T.cruzi* infections were described in seven hunting dogs in Henderson, Louisiana (Malone J, 2005. Dept. of Pathobiological Sciences, LSU Veterinary School, Baton Rouge).

*Trypanosoma cruzi* has been present in wildlife in Louisiana and the rest of the southeastern U.S. for centuries. The disease is considered endemic. Recently, blood donation screening programs have identified a few sporadic cases in the U.S. where persons apparently were exposed to the disease domestically. This does not likely represent a new phenomenon, but instead reflects screening that was not performed universally until recent years. The recent increase in Chagas screening is due to the perceived threat the disease posed to the nation's blood supply, due to increased immigration from areas of the world where large numbers of human cases are reported. In other words, this phenomenon has likely always occurred; however, the screening programs are now identifying additional cases. A complete review of the threat posed by *T.cruzi* in Louisiana is available in the first issue of the Journal of the Louisiana Medical Society, *Chagas disease in the United States: A cause for concern in Louisiana*, Diaz, JH, 2007, J La State Med Soc. 159:21-29.

### The 2006 Case

These triatome bugs can transmit the parasite to humans and other mammals. In July 2006, the first human case of insect-transmitted Chagas parasite in Louisiana and sixth ever in the U.S. was described. The discovery was made after a resident brought insects to the attention of a pest control operator who identified the insects as kissing bugs. After researching information on the Internet, the resident realized the potential for Chagas transmission. A local expert on Chagas disease was contacted to further investigate this situation. Of the two residents tested, one was positive for the antibodies to the Chagas parasite. Studies carried out for several months on the many insects that were collected in the house and

the nearby building, indicated that more than half of the insects tested carried the Chagas parasite. This incident was not considered a wide-spread public health concern since the person was living in a rural area, in a very open house with numerous entry points for insects, and no air conditioning. Most people in Louisiana reside in homes much less open to the outside. (<http://www.cdc.gov/eid/content/13/4/605.htm>)

### **The 2011 Cases**

An additional case of a human with serological evidence of exposure to the parasite was reported in 2011. This case was reported in a resident of St. Martin Parish who lived in a typical modern home with a functioning heating and air conditioning system. This Louisiana resident reported no significant potential exposures outside the U.S., but did report a history of recreational camping.

The second case was a resident of Lafayette Parish who could not be contacted for an interview.

### **The 2012 Case**

The only case reported in 2012 was a resident of Saint Charles Parish that was born in Central America. The patient was diagnosed via blood donation screening, and mentioned having surgery under her arm previously.

### **The 2013 Cases**

The first case was a resident of the Opelousas area. This case reported no significant potential exposure outside the United States, but did report a history of recreational camping in the state. There was a reported insect bite with subsequent swelling the next morning. This case was diagnosed via blood donation screening.

The second case was a resident of Acadia Parish whose living situation is unknown. This case did not report a travel history or any other significant potential exposure.

### **The 2014 Case**

The only case reported in 2014 was a Mexican immigrant residing in the Terrebonne Parish area. The case reported sleeping outside in Mexico in his youth, but did not notice any bugs near the place of current residence. The case was diagnosed via blood donation screening.

### **The 2015 Cases**

There were three cases reported in 2015, two asymptomatic and one with mild symptoms.

The first asymptomatic case was detected after donating blood, and was a resident of the Pointe Coupee area who had spent some time outdoors and in a cabin in the woods. After inspection, no triatomine bugs were found, but some close relatives of these bugs that could potentially carry *T. cruzi* were found.

The second asymptomatic case had no history of international travel, but reported spending a considerable amount of time camping. This case was also detected after a blood donation. This case lived in an urban part of Iberia Parish.

The last case was an immigrant construction worker from Mexico living in the Jefferson Parish area. This case reported cardiac arrest, fever, confusion, leukocytosis, thrombocytopenia, and was under the care and supervision of a cardiologist. This case was confirmed by the Centers for Disease Control and Prevention (CDC) lab and followed up with by the Infectious Disease Epidemiology Section.

### **The 2017 Cases**

There were three cases reported in 2017. All were asymptomatic.

The first case was an asymptomatic individual who became infected through an organ transplant. The organ donor had previously lived in Central America.

The second case was an asymptomatic individual living from Caddo parish who could not be contacted for interview.

The final case was an asymptomatic individual who had observed triatomine bugs outside of his home in Ascension Parish. He reported no recent travel outside of the country, but had visited South America several years prior. He was identified through a blood donation screening test. Confirmatory testing was not performed until 2018.